



NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY
Know the Earth... Show the Way... Understand the World

Anaglyphs

A colorful way to see the world
in

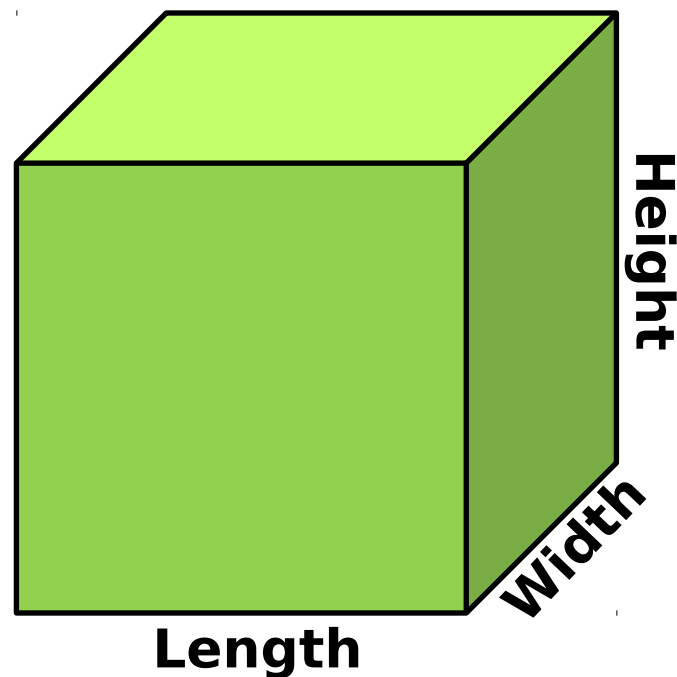
3

D





We see the world in three dimensions.





Binocular Vision

Allows us to tell how far away an object is (good to about 20 feet)

Relies on our eyes being spaced 2-3 inches apart

Each eyes sees things with a slightly different perspective

Your brain interprets the two slightly different images to give a sense of depth



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How do you see 3D on a flat screen?





One way is to use anaglyphs.



← **Regular
Photograph**



← **Anagly
ph**



Quick History Lesson

Anaglyph comes from the Greek **ανα** (again) and **γλυφη** (sculpture)

Wilhelm Rollmann and J.C. D'Almeida demonstrated anaglyph creation in 1853 and 1858, respectively.

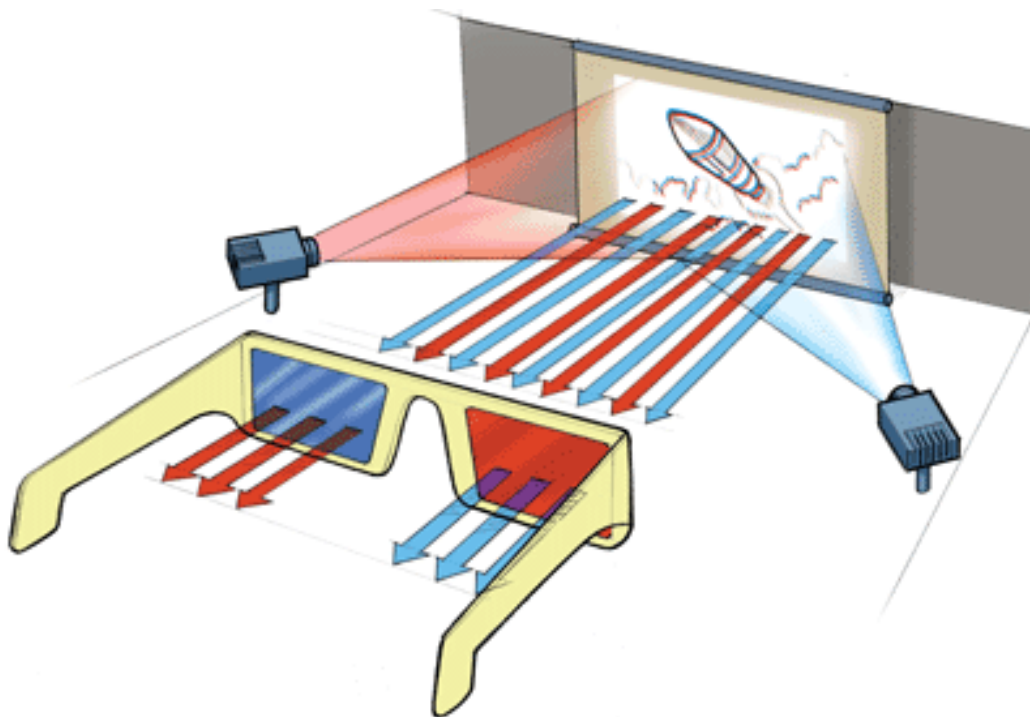
The method for creating anaglyphs was patented by Louis Ducos du Hauron in 1891.

Lots of movies were made using anaglyph technology in the 1950s – 1980s.



So what's an anaglyph?

The name given to the stereoscopic 3D effect achieved by encoding each eye's image using filters of different colors.





Different color combinations

Combination

Color Rendering

Red - Blue

Monochrome

Red - Cyan

Poor reds, good greens

Red - Green

Monochrome

Green - Magenta

Almost full color

Amber - Dark Blue

Almost full color

Magenta - Cyan

Color



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How to make an anaglyph

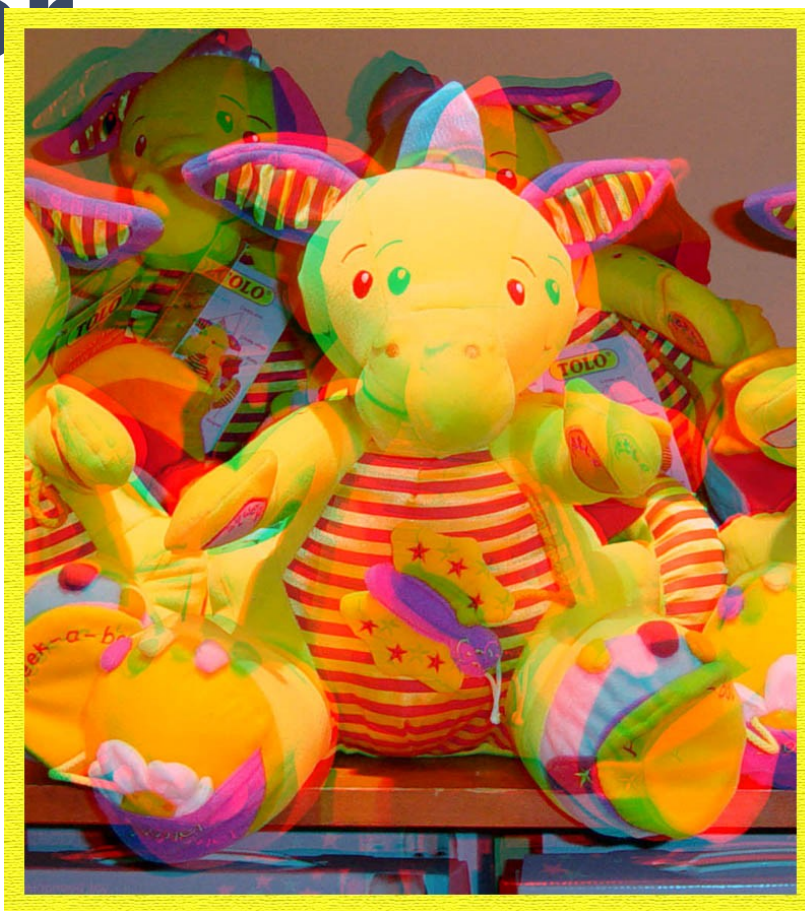


Note the subtle differences between the two images.



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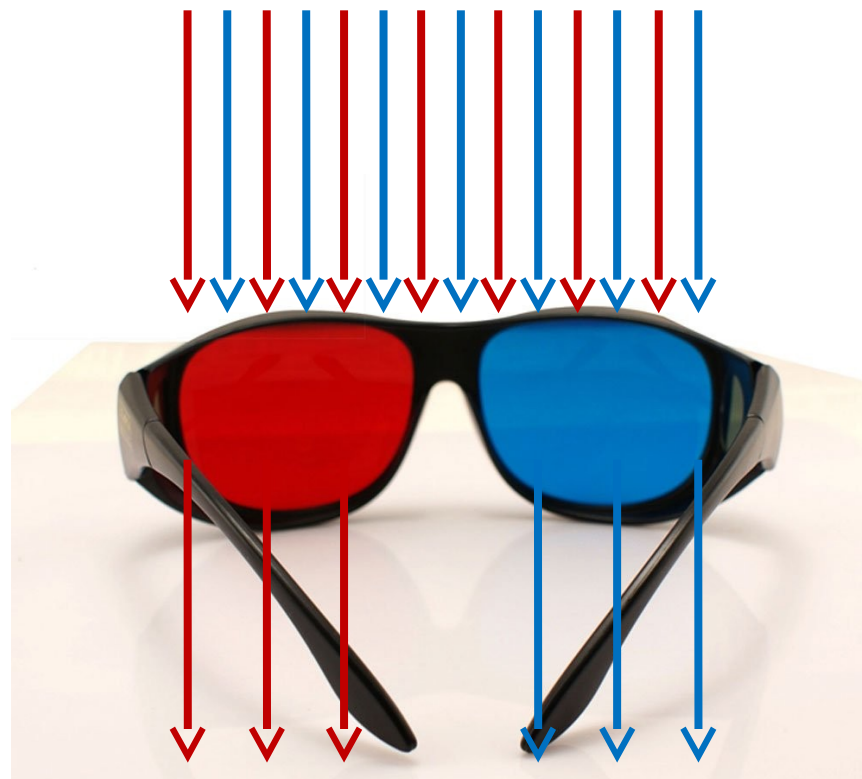
Monochrome or Full-





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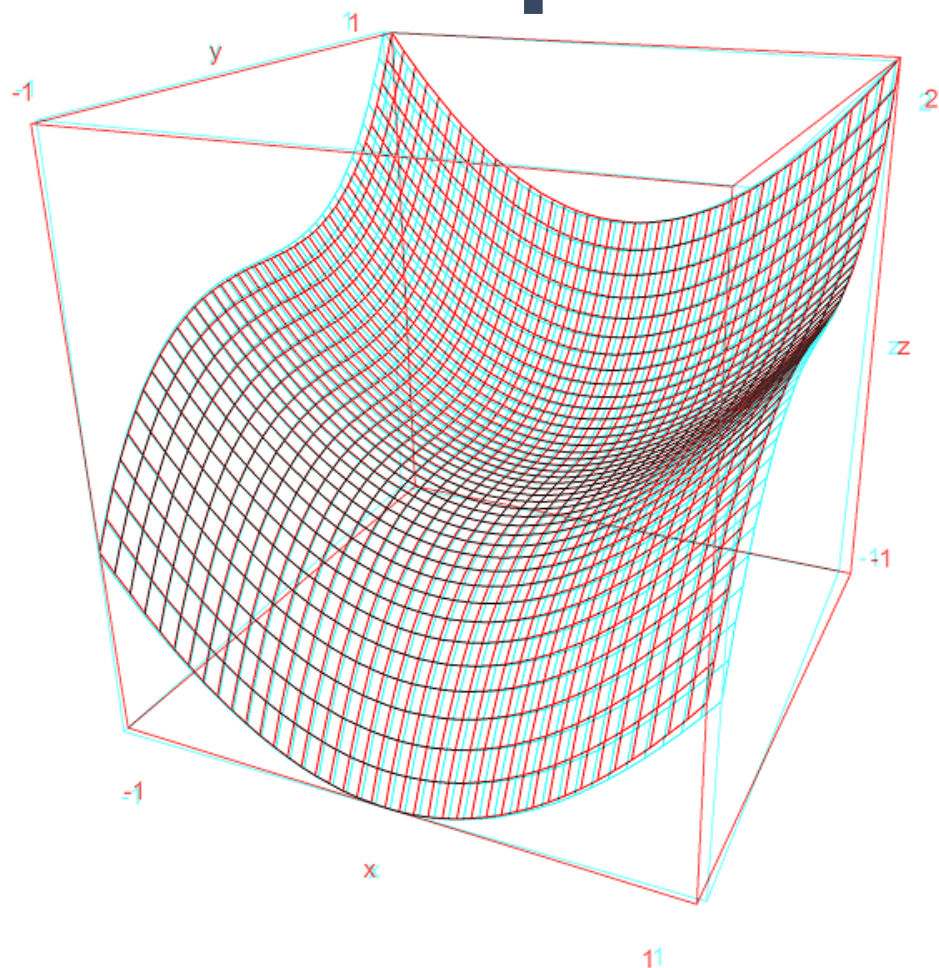
Filters make the magic happen





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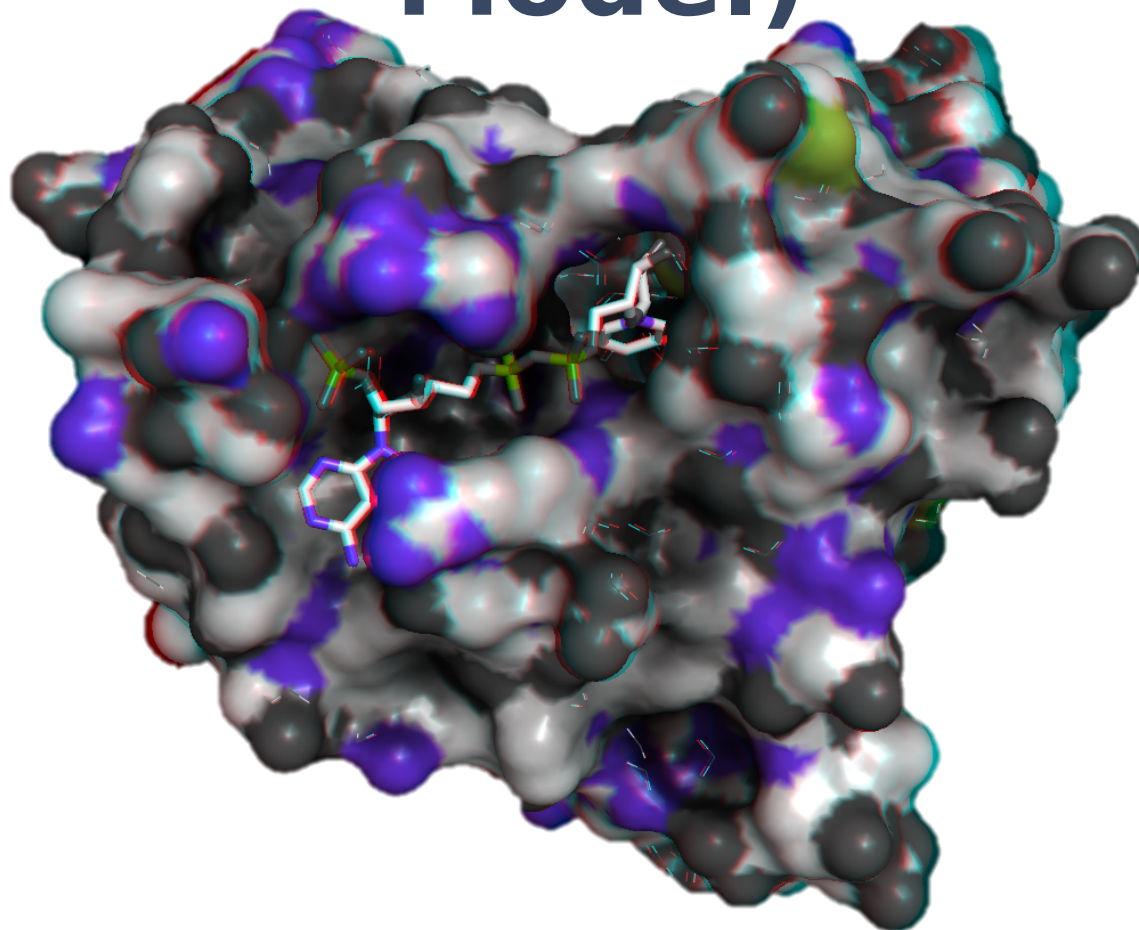
Computer Generated Graph





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Ribosome (Computer Model)





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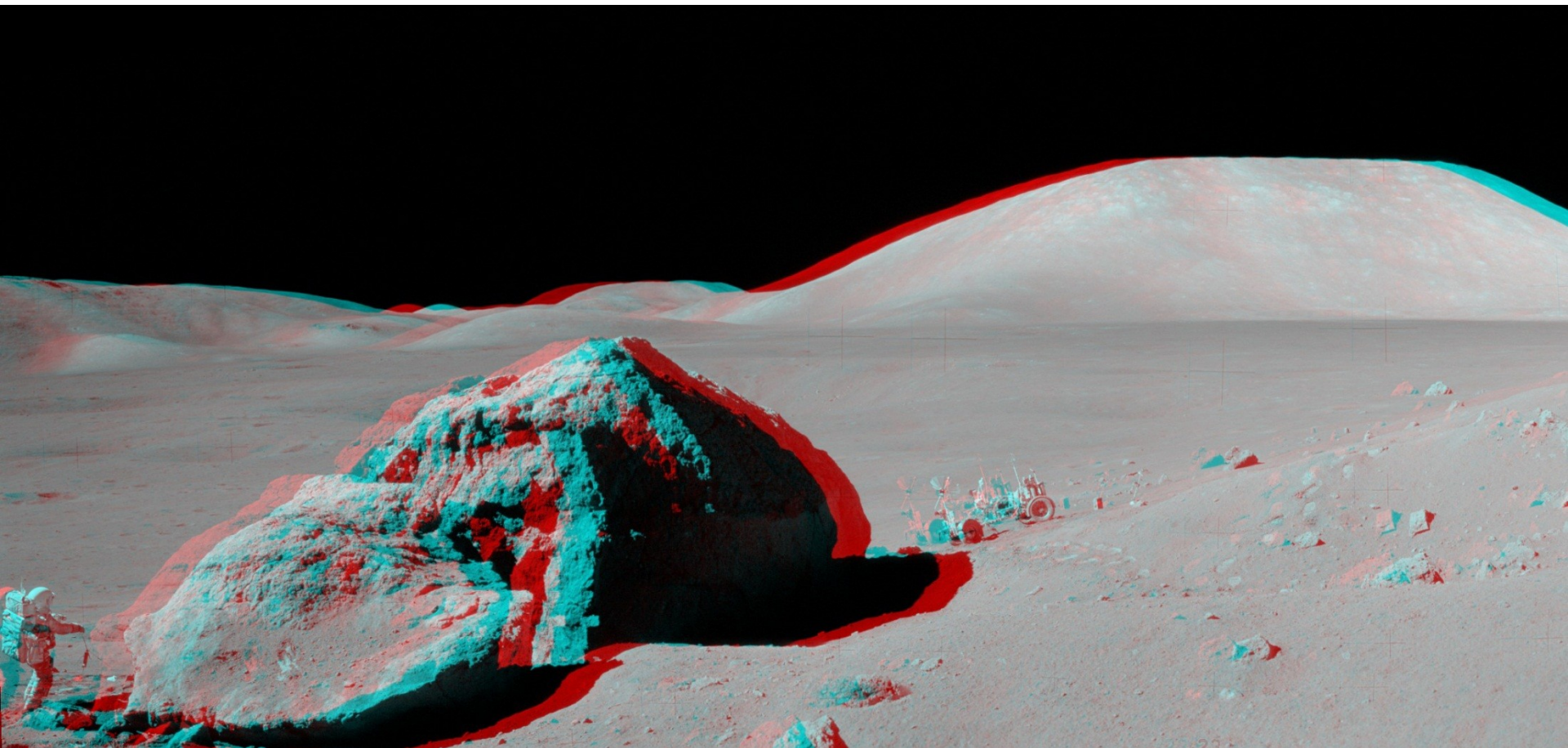
Artificial World





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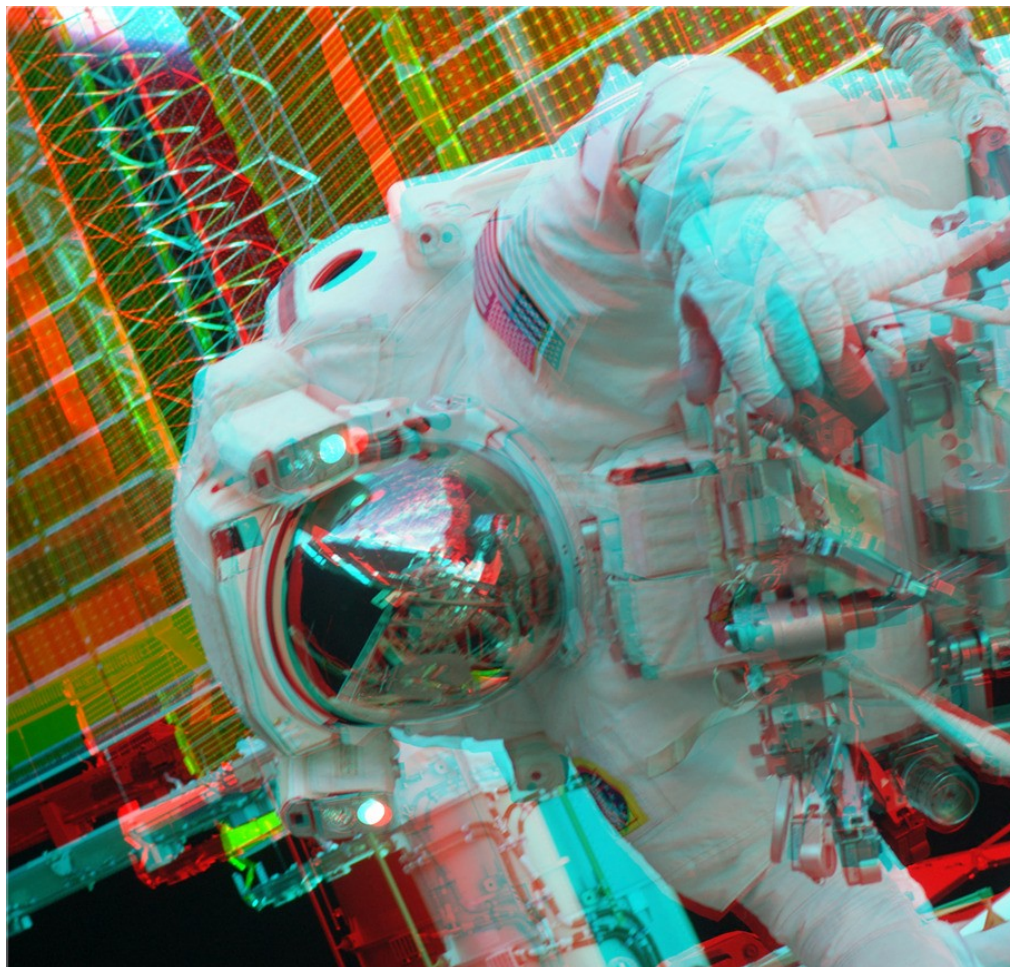
Apollo Lunar Mission





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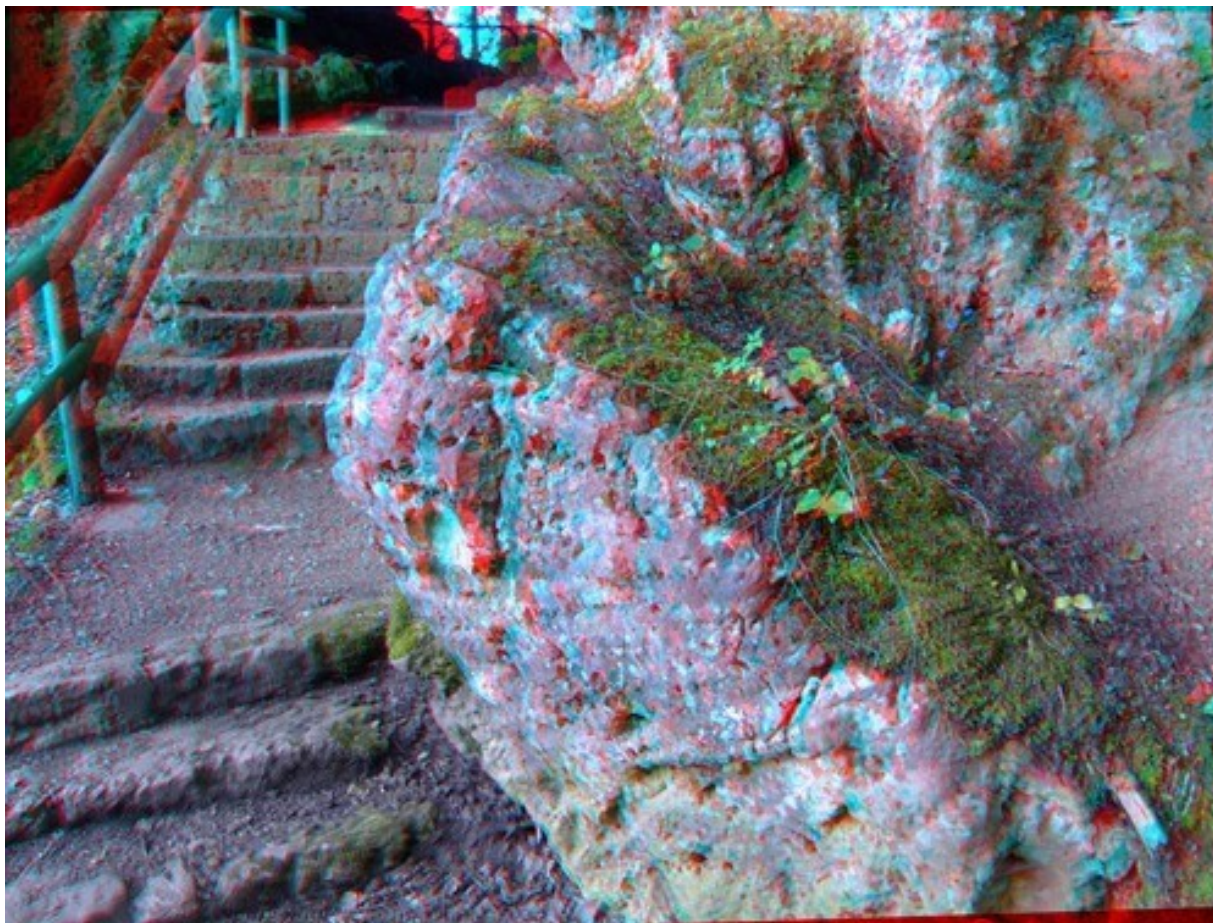
Astronaut outside ISS





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Stairs





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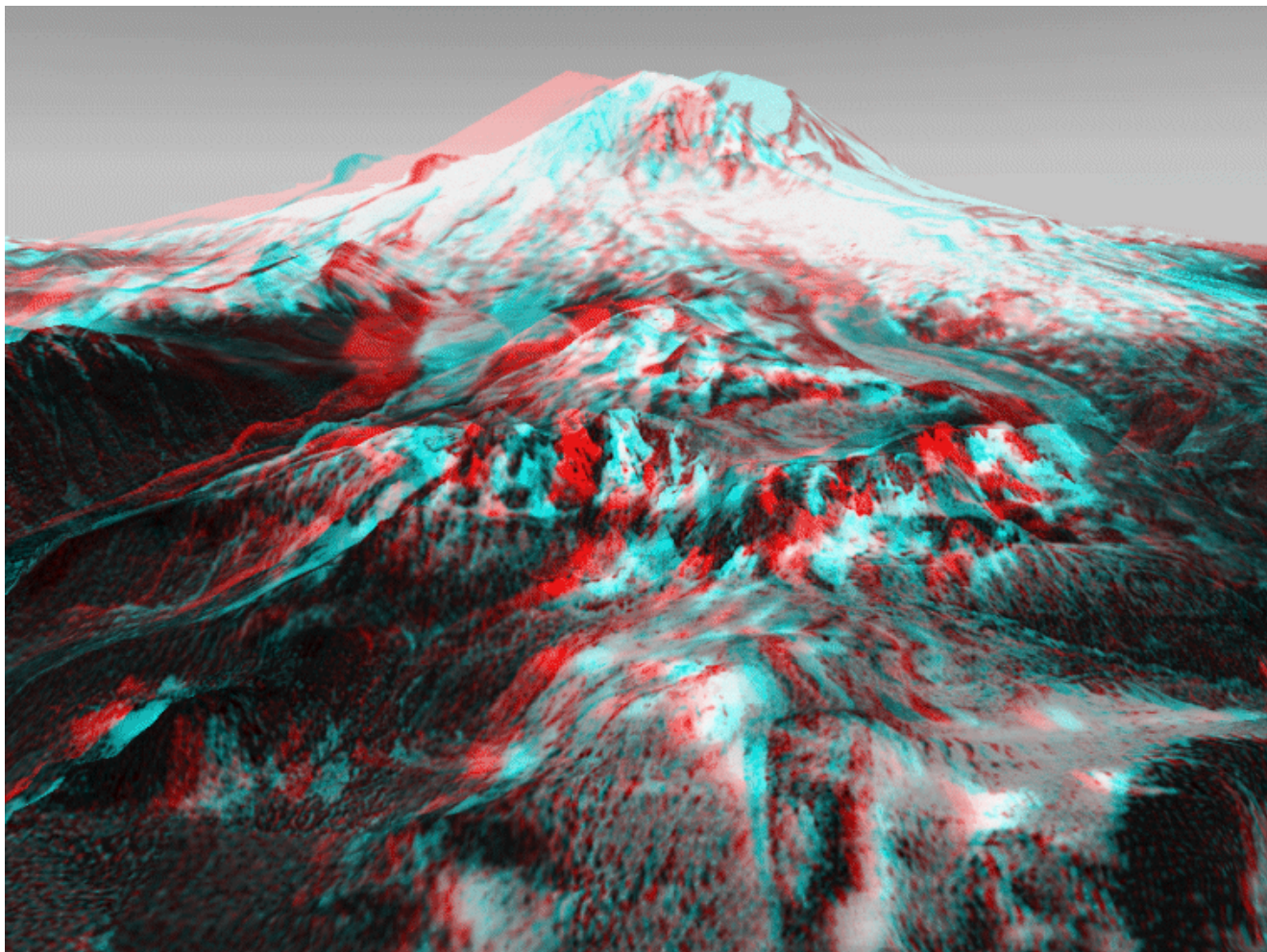
Flowers





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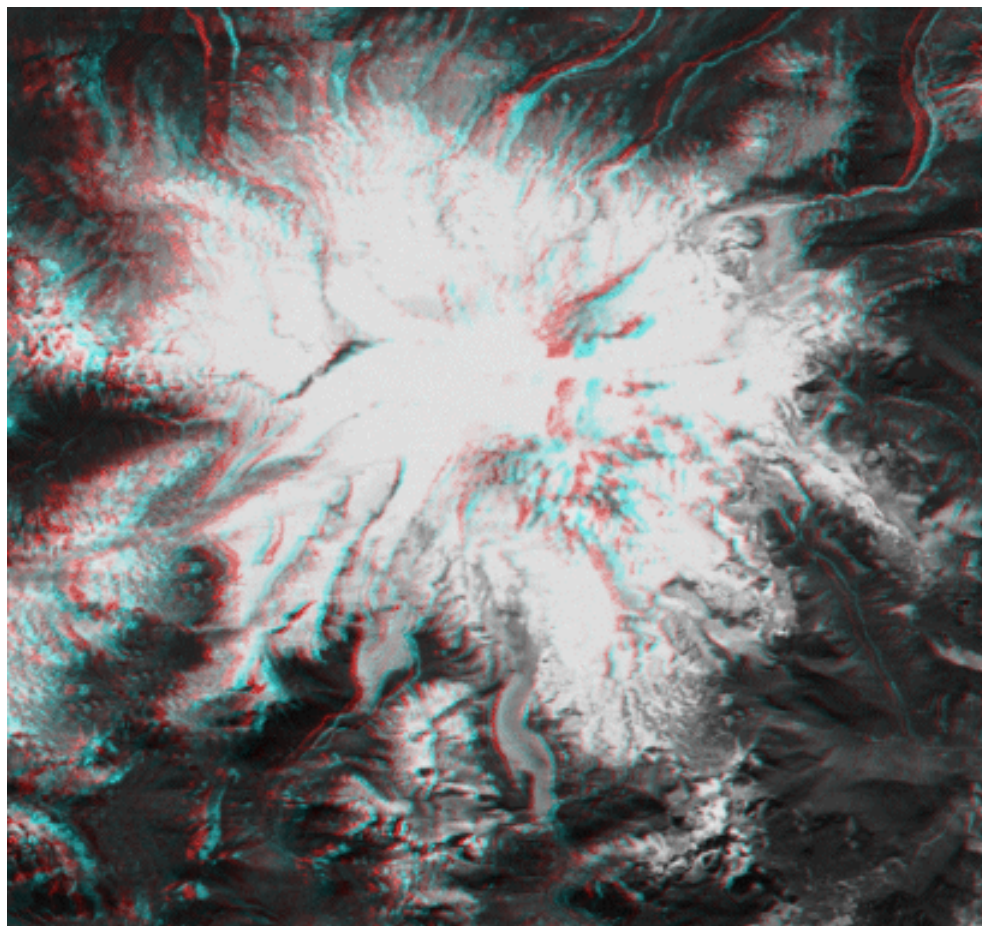
Mountain: Side View





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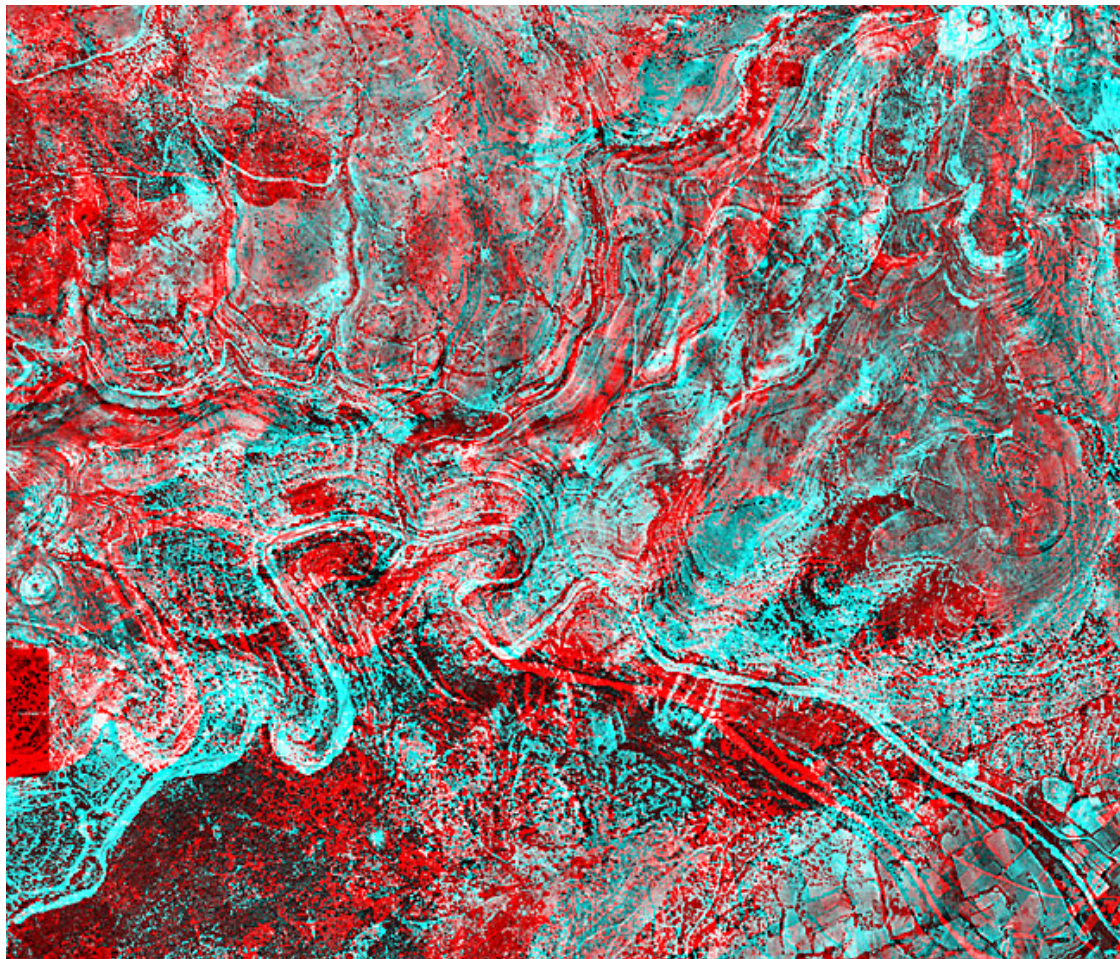
Mountain: Top View





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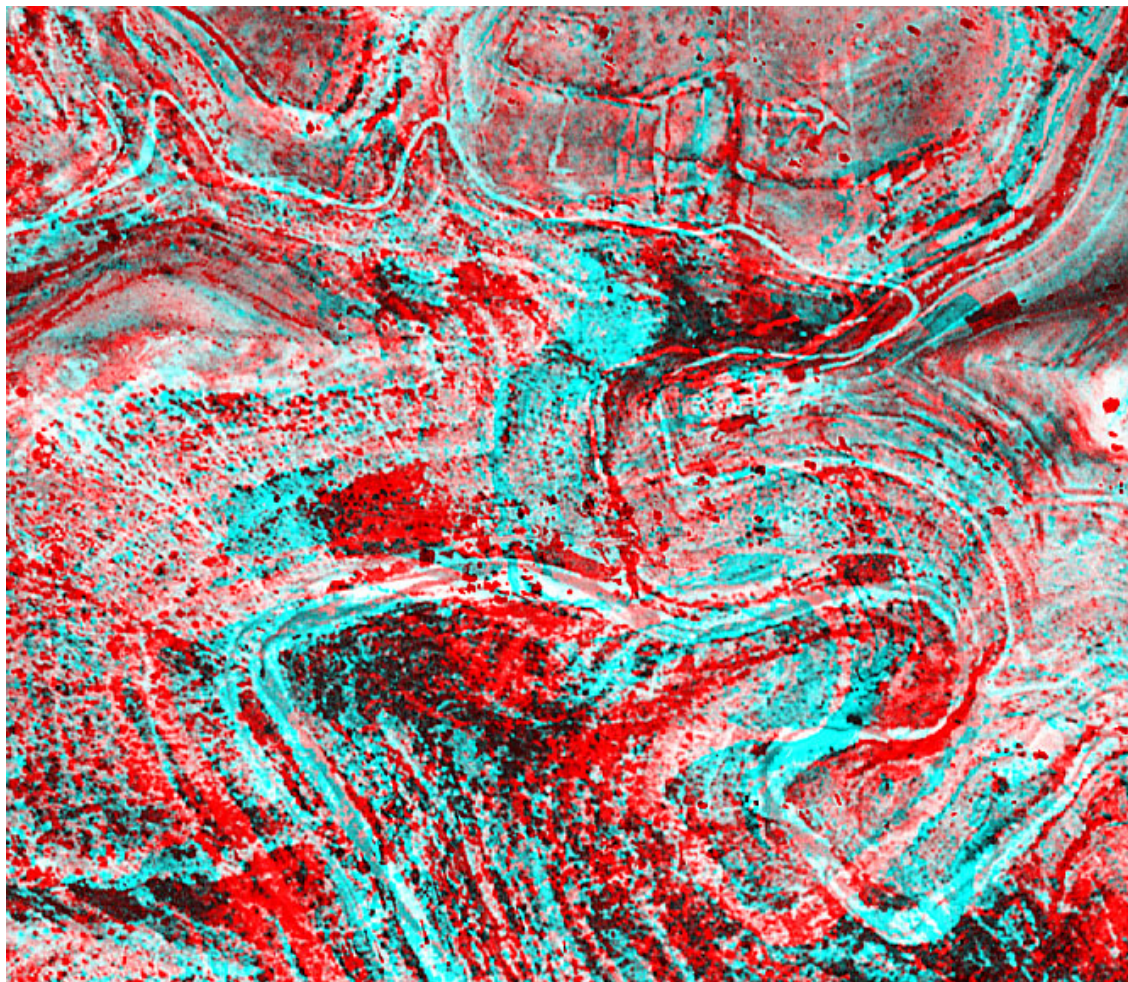
Canyons

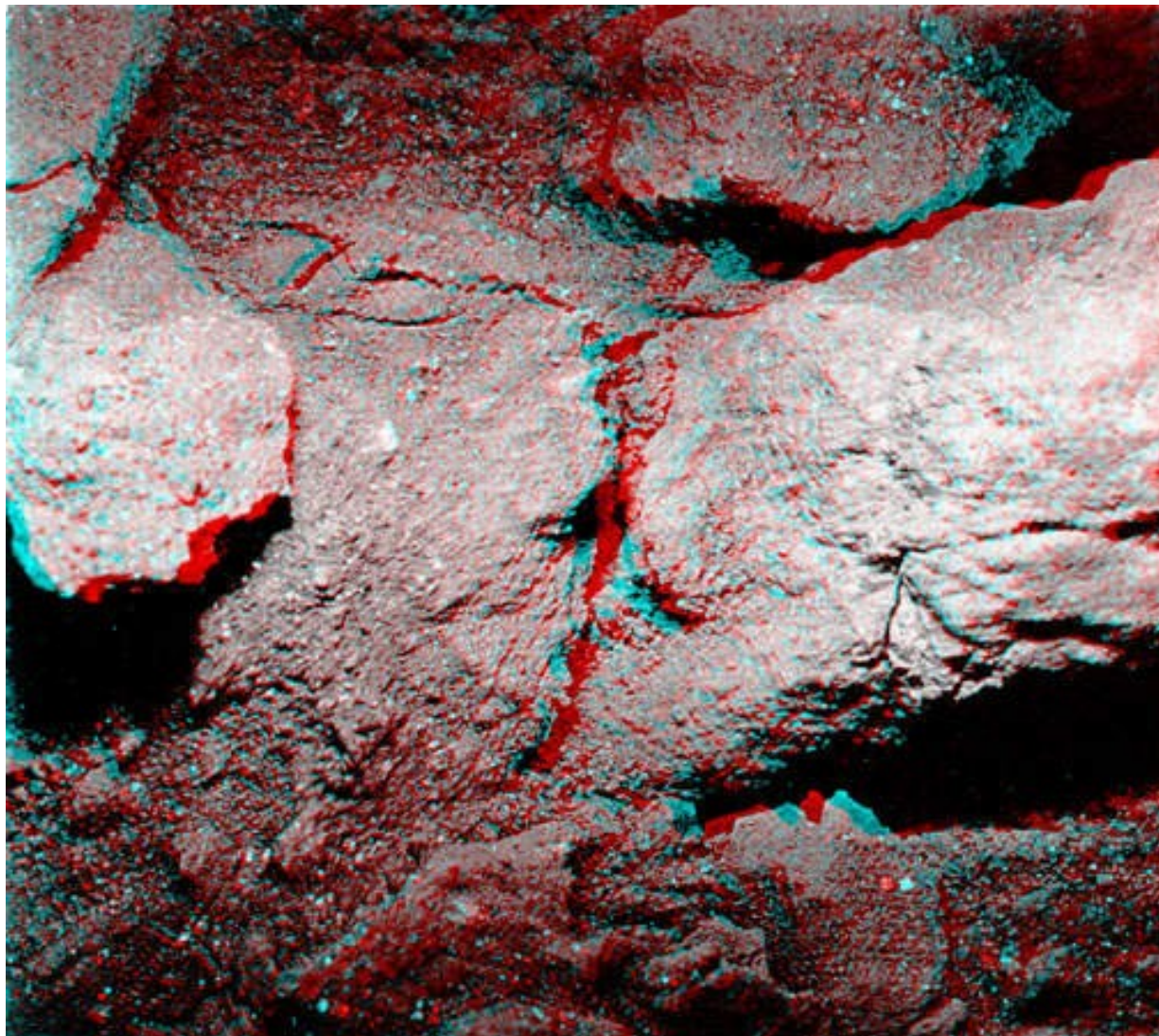




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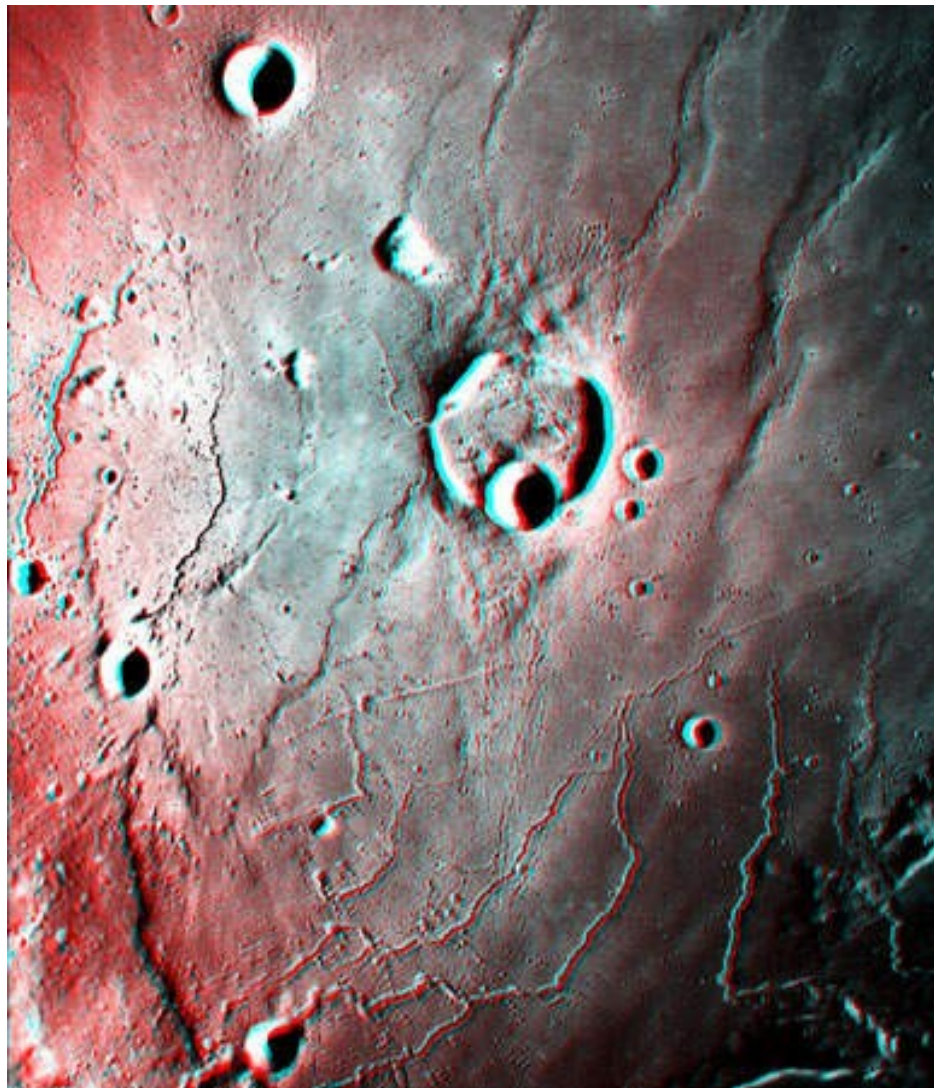
Canyon Close-up





**What
is this?**

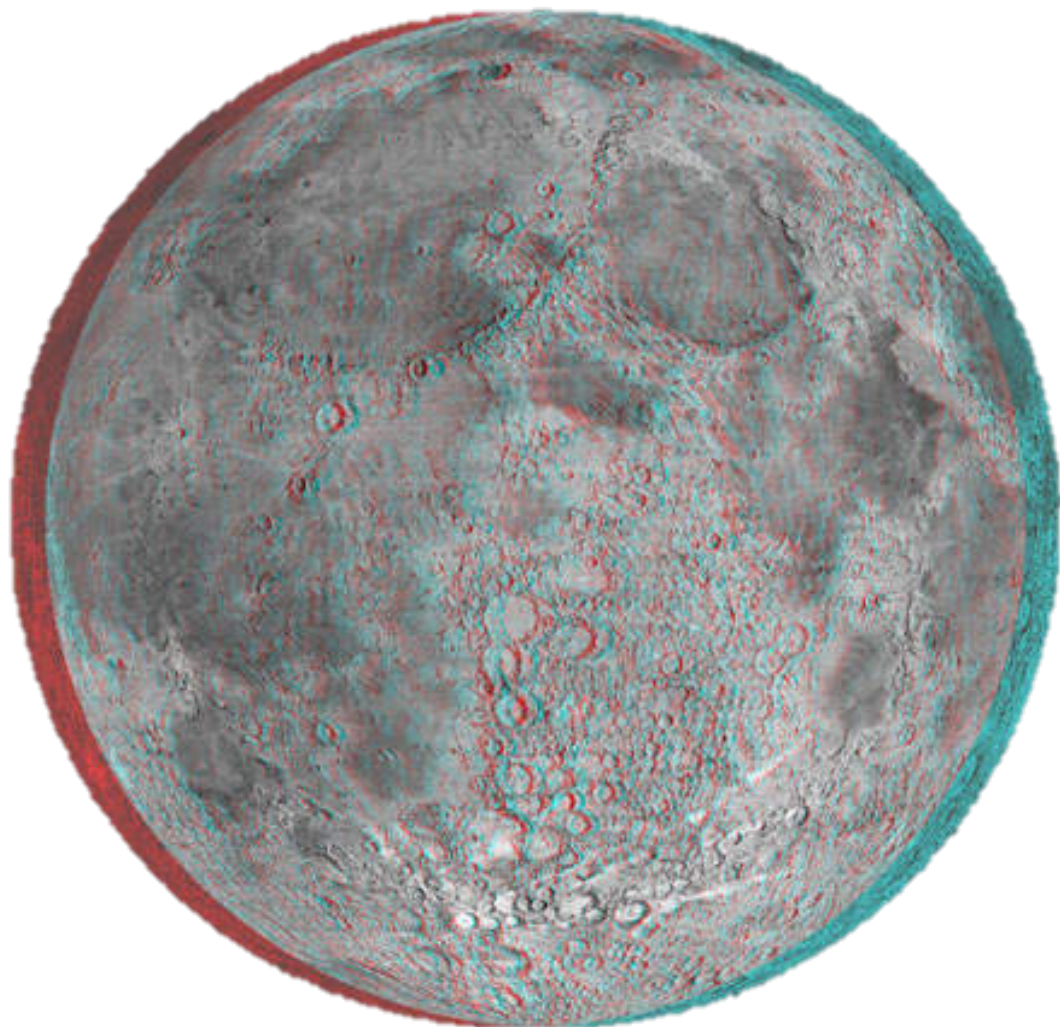
**Where
is this?**



Hint #1



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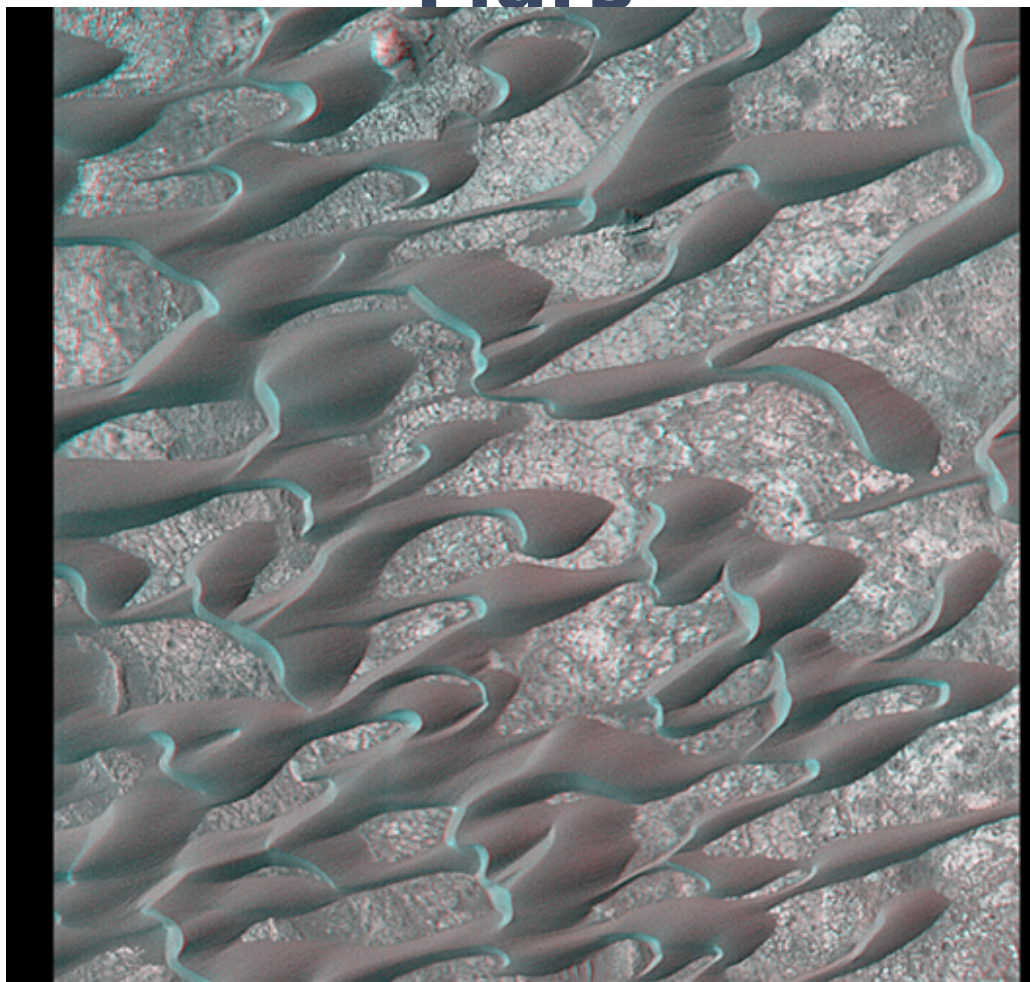


Hint #2



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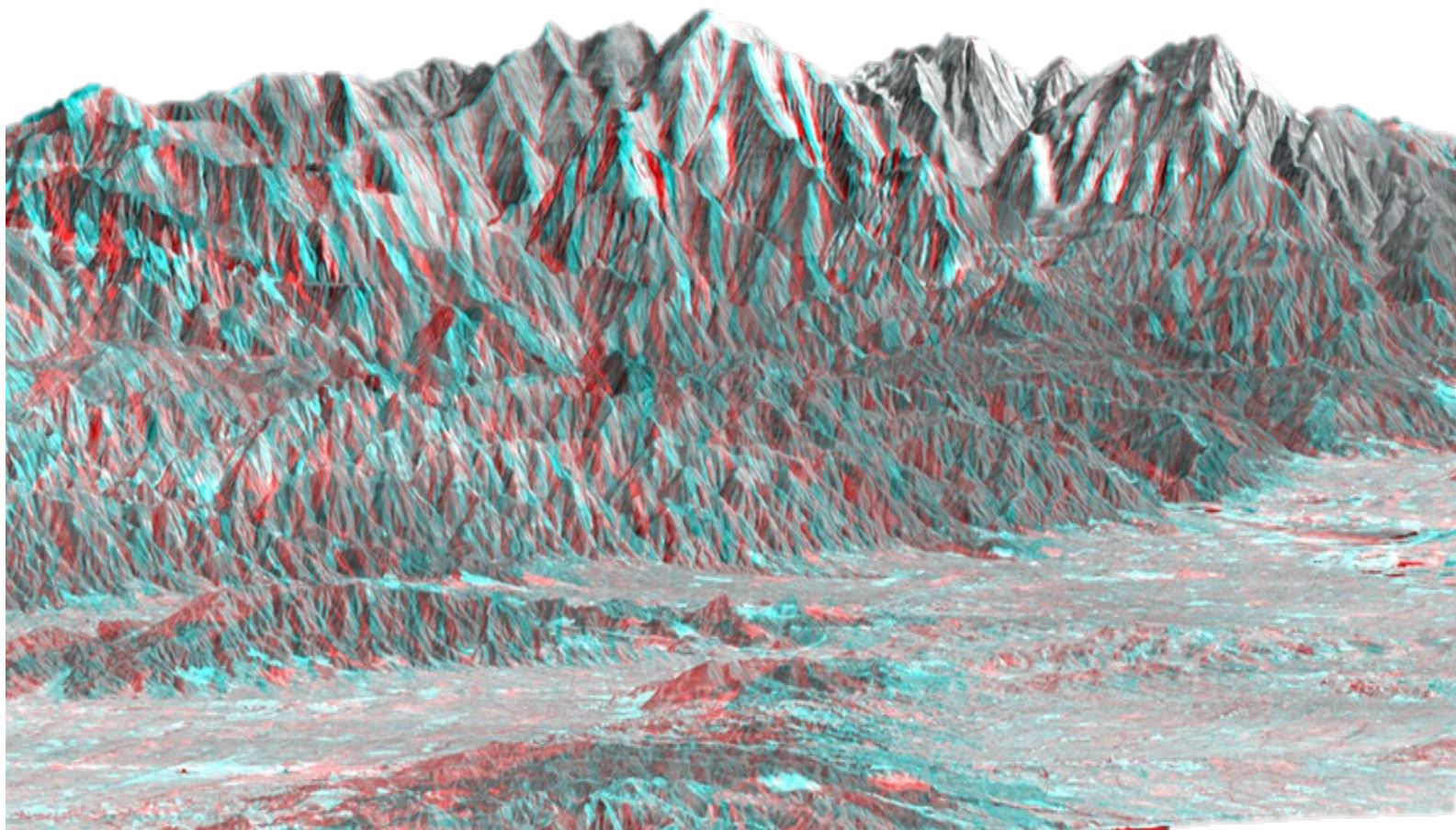
Sand dunes of Nili Patera on the planet Mars





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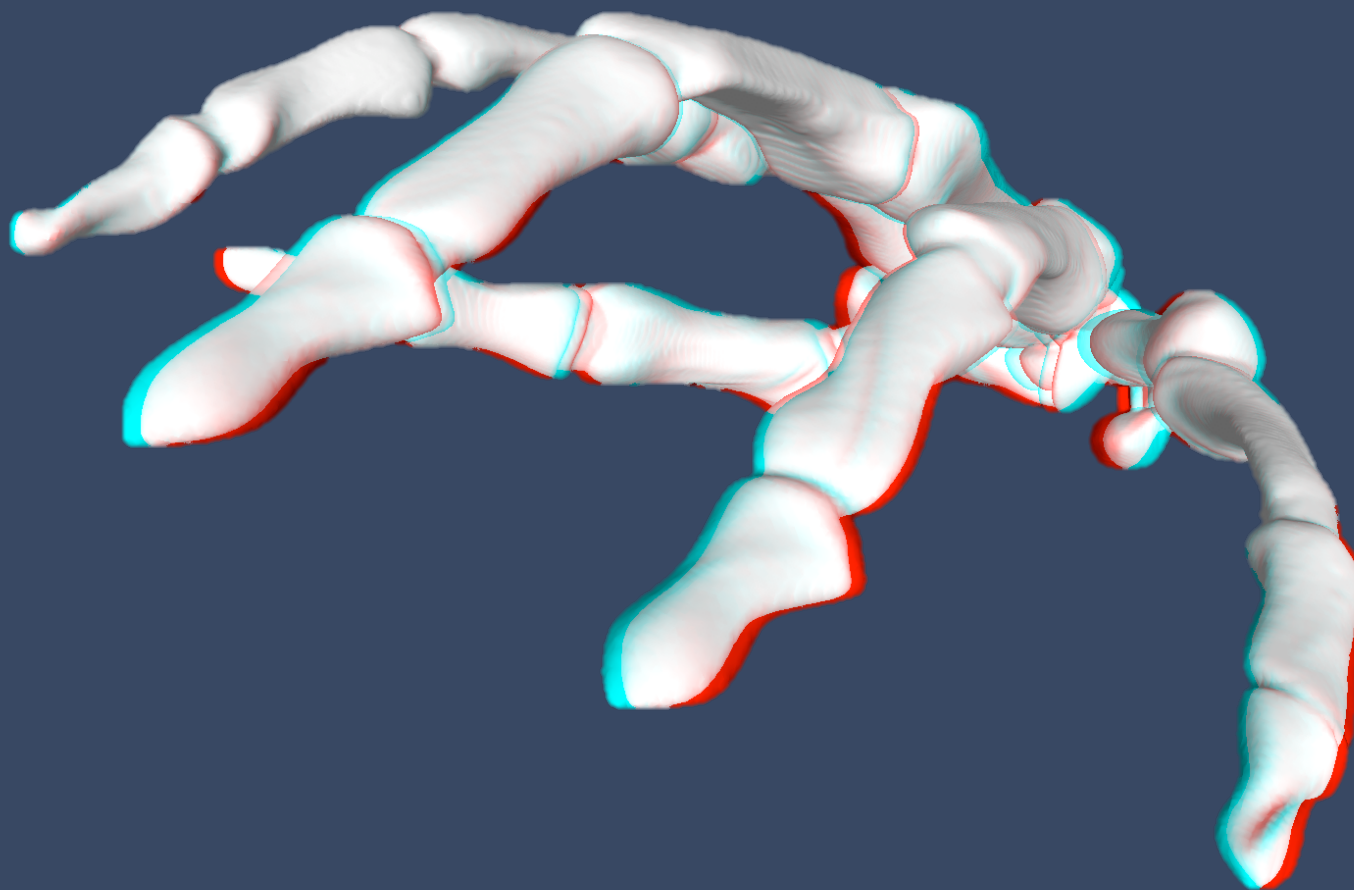
Metro Los Angeles, CA





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Skeletal Hand Model





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